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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/677,075	09/29/2000	Gregory J. Kostrzewsky	99RE055	2141

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EXAMINER
JOYCE, WILLIAM C

ART UNIT	PAPER NUMBER
3682	

DATE MAILED: 03/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/677,075	Applicant(s) KOSTRZEWSKY ET AL.
	Examiner William C. Joyce	Art Unit 3682

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 December 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17,19,20 and 22-27* is/are rejected.

7)☒ Claim(s) *18 and 21* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

This Office Action is in response to the amendment filed December 23, 2002 for the above identified patent application.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-4 and 6-15, are rejected under 35 U.S.C. 103(a) as being unpatentable Holzman (US Patent 4,872,502) in view of Olah (US Patent 2,511,479).

Holzman discloses a gearbox comprising a conductive housing (10,11,23,24), a bearing element disposed within the housing, at least one motor driven fan (43,44) mounted to the bearing housing, wherein the fan is adapted to transfer heat from the bearing housing by forced convection. Referring to column 5, lines 14+, Holzman discloses that the fan may be thermostatically controlled by an adjustable temperature sensor submerged in the lubricant oil sump of the gear drive housing. As illustrated in Figure 5, the fan is controlled by a logic controller having predetermined limits for controlling the operation of the fan.

Holzman discloses the gearbox having an oil sump to house lubricant (column 4, lines 28-33) but does not clearly teach the oil from the sump being used to lubricate the

bearings. However, it was notoriously well known in the art for a gearbox to use oil from a sump to lubricate the bearings. For example, Olah teaches a gear reduction device having cooling means for cooling lubricant disposed in an oil sump (33), wherein the lubricant is supplied to the bearings of the gearbox. It would have been obvious to one of ordinary skill in the art at the time the invention was made to configure the gearbox of Holzman such that the lubricant from the oil sump is supplied to the bearings, as taught by Olah, in order to lubricate and cool the bearings.

With respect to claim 3, Holzman does not disclose the gearbox having cooling fins for increasing the cooling efficiency of the device, but it was notoriously known in the art to provide a gearbox housing with fins as claimed. For example, the prior art to Olah teaches providing a gearbox with cooling fins. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the gearbox housing of Holzman with cooling fins, as taught by Olah, in order to increase the cooling efficiency of the device.

With respect to claim 6, Holzman discloses the temperature sensor being submerged in the oil sump.

With respect to claims 11-15, Holzman does not disclose the gear reduction housing having a pair of fans for transferring heat from the housing. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide two fans on the housing, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. St. Regis Paper Co. v. Bemis Co., 193 USPQ 8. Further, it would have been obvious to an engineer in the art

at the time the invention was made modify the device of Holzman by providing a second fan on the housing and a second adjustable control circuit to control the fan operation, in order to increase the heat transfer from the housing.

3. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Holzman (US Patent 4,872,502) and Olah (US Patent 2,511,479) as applied to claim 4 above, and further in view of Woodroffe et al. (US Patent 6,425,293).

Holzman does not disclose the temperature sensor configured to measure a temperature of the bearing, but the prior art to Woodroffe et al. teaches monitoring the temperature of bearings in a gearbox with a sensor to prevent failure of the device due to overheating. Referring to the specification, Woodroffe et al. discloses "The temperature of a bearing, for example, can also be monitored to detect the occurrence of over-heating" (column 1, lines 49+), "the temperature sensor 164 may be used to sense temperature indicative of gear overheating or bearing overheating" (column 7, lines 55+), and "examples of gearbox cooling include... operating a cooling fan to provide air cooling over the gearbox" (column 23, lines 5+). It would have been obvious to one of ordinary skill in the art at the time the invention was made to position the temperature sensor of Holzman such that it measures a temperature of the bearing, as taught by Woodroffe et al., in order to prevent overheating of the bearing.

4. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Holzman (US Patent 4,872,502) and Olah (US Patent 2,511,479) as applied to claim 4 above, and further in view of Roberts (US Patent 3,548,396).

Holzman does not show the temperature sensor disposed adjacent the bearing element, however monitoring the temperature of a bearing element was known in the art. For example, the prior art of Roberts discloses a temperature sensing device positioned adjacent a bearing element for monitoring a bearing from overheating. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide an additional temperature sensor to the gear device of Holzman, positioned adjacent the bearing, as taught by Roberts, in order to ensure the bearing does not overheat during operation.

5. Claims 16, 17, 19, 20, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holzman (US Patent 4,872,502) in view of Olah (US Patent 2,511,479) and Müller (US Patent 4,806,832).

As described above, the prior art to Holzman and Olah provide teachings for providing a cooling fan connected to a transmission housing for controlling the temperature of the transmission components, such as bearings, gears, and shafts. Holzman further teaches controlling the fan with an adjustable temperature sensor submerged in the lubricant oil sump of the gear drive housing, but does not teach the fan having variable speed control. It was well know in the art to control the speed of a fan to control the amount of airflow produced by the fan. For example, the prior art to Müller teaches that it was well known in the art to vary the speed of a fan to control the

amount of air flow produced by the fan (see "Background of the Invention" and "Summary of the Invention"). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the control circuit of Holzman such that the fan has multiple operating speeds, as taught by Muller, in order to provide adequate cooling of the housing without consuming excessive electricity.

With respect to claim 22, Holzman does not disclose the gear reduction housing having a pair of fans for transferring heat from the housing. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide two fans on the housing, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. St. Regis Paper Co. v. Bemis Co., 193 USPQ 8.

6. Claims 23-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holzman (US Patent 4,872,502) in view of Woodroffe et al. (US Patent 6,425,293) and Müller (US Patent 4,806,832).

The prior art to Holzman, as described above, does not disclose means for discerning a temperature of a bearing element, but the prior art to Woodroffe et al. teaches monitoring the temperature of bearings in a gearbox with a sensor to prevent failure of the device due to overheating. It would have been obvious to one of ordinary skill in the art at the time the invention was made to position the temperature sensor of Holzman such that it measures a temperature of the bearing, as taught by Woodroffe et al., in order to prevent overheating of the bearings.

Holzman further teaches controlling the fan with an adjustable temperature sensor in gear drive housing, but does not teach the fan having variable speed control. It was well know in the art to control the speed of a fan to control the amount of airflow produced by the fan. For example, the prior art to Müller teaches that it was well known in the art to vary the speed of a fan to control the amount of air flow produced by the fan (see "Background of the Invention" and "Summary of the Invention"). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the control circuit of Holzman such that the fan has multiple operating speeds, as taught by Muller, in order to provide adequate cooling of the housing without consuming excessive electricity.

Holzman does not disclose providing a fan and a temperature sensor at each of the bearings of the gearbox. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a fan and a temperature sensor for each bearing, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. St. Regis Paper Co. v. Bemis Co., 193 USPQ 8.

Allowable Subject Matter

7. Claims 18 and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

8. Applicant's arguments with respect to claims 1-16 filed December 23, 2002 have been fully considered but they are not persuasive.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). For example, it would have been obvious to one of ordinary skill in the art at the time the invention was made to configure the gearbox of Holzman such that the lubricant from the oil sump is supplied to the bearings, as taught by Olah, in order to lubricate and cool the bearings.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

In response to applicant's argument that Müller is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Müller is in applicant's endeavor and is reasonably pertinent to the claimed invention. For example, the claims define a logic controller for a thermal device (such as claim 17) and Müller is currently classified in 318/471 which is thermal responsive motive power systems.

9. Applicant's arguments with respect to claims 17, 19, 20, and 22-27 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William C. Joyce whose telephone number is (703) 305-5114. The examiner can normally be reached on Monday - Thursday 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bucci can be reached on (703) 308-3668. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-7687 for regular communications and (703) 305-7687 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1113.

William C. Joyce
March 24, 2003